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IN THE U.S. ARMY IN PEACETIME

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DEATHS FROM INJURY AND FROM DISEASE  
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Datel (1) has reported data from several methods obtaining mortality rates for the United States Army as part of a study of the reliability of mortality and suicide counts. We now report additional information on the mortality experience of the United States Army population using a third source of death data. The purpose of this note is to present data which will encourage scholarly consideration of vital statistics within that unique population which is the military.

The previously reported (1) mortality rates were calculated from counts of the entire casualty recording system or from the subset of hospital records which showed a disposition of death. The data which we now present is based on the counts of separations from the US Army recorded in the enlisted personnel files (2) as due to death from disease or death from non-disease (i.e., accidents, poisoning, violence). The denominator for the calculation of the mortality rates is the fiscal year (FY) end strength (3) (i.e., the FY77 strength is the strength of the US Army on September 30, 1977). The standard error of the mean for the tabulated rates was calculated from the denominator and the square root of the numerator.

We have used the most recently available four years of data to calculate several traditional population measures. The sex-specific mortality rates are seen in Table 1 to be approximately half as great for female soldiers as for male soldiers. When compared to the civilian experience by applying the US civilian life table (4) age, race, and sex specific rates to the Army population to derive an expected mortality rate, we see that the standardized mortality ratio (the observed mortality divided by the expected mortality), shown in table 2, is significantly less than one for both the males and the females. The personnel system data files do not record the specifics of the deaths but do indicate if the death was due to disease or non-disease. The low overall fraction of deaths due to disease seen in Table 3 probably is due both to the 'healthy worker' effect (if you are healthy enough to have met the medical and physical criteria for entry and continued service in the Army, then you are at lower risk for death by virtue of your "employment" in the Army) and the comprehensive free medical care available to the soldiers. The lower fraction of deaths due to disease among the females compared to the males for only three of the four years is somewhat of a puzzle and the reason for that relationship is not immediately obvious to the authors.

In the U.S., accidents are a major lethal condition. The impact of these accidents is intensified by their disproportionate occurrence as a cause of death in otherwise healthy young adult males. The health planning policy issue of comparison of the importance of the major causes of death has been considered by Romeder and McWhinnie (5) in terms of potential years of life lost and has been considered by Tsai and Lee (6) in terms of potential gains in life expectancy. Both set of authors used geographically defined populations (Canada and Texas, respectively) and, although they consider the effects of motor vehicle accidents in the population, their results are not directly applicable because of the Army's truncated age structure (ranging from 17 through about 50 with the majority in their 20s), skewed sex ratio (more than 90% male), and the healthy worker effect mentioned above.

A survey of the psychosocial antecedents of physical illness in the 1965 through 1975 decade (7) considered over three hundred reports and found a scant 1.8% of them dealt with accidental injury. This disproportionately small number of studies was observed even though the author was able to state that "if loss of life span instead of simple mortality is used as an index, accidents are in first place, followed by cardiovascular disease, cancer and respiratory diseases" (7,p.136). Based on that review, the study of non-disease deaths can certainly be considered to be a neglected area.

1. Datel, W. E.: The reliability of mortality count and suicide count in the United States Army. *Military Medicine*, 144: 509-512, 1979.
2. Organizations and Functions Manual, Office of the Adjutant General, Department of the Army, Washington, D.C., 1977.
3. Department of Defense, Office of the Assistant Secretary of Defense (Comptroller), Directorate for Information, Operations and Control, The Pentagon, Washington, D.C.
4. Vital Statistics of the United States, 1978, VII-5, Life Tables, National Center for Health Statistics, Hyattsville, MD., 1980.
5. Romeder, J. M. and McWhinnie, J. R.: Potential years of life lost between the ages of 1 and 70: an indicator of premature mortality for health planning. *International Journal of Epidemiology*, 6: 143-151, 1977.
6. Tsai, S. P. and Lee, E. S.: Potential gains in life expectancies by partial elimination of leading causes of death in Texas. *Texas Reports on Biology and Medicine*, 36: 185-196, 1978.
7. Hull, D.: Life circumstance and physical illness: A cross disciplinary survey of research content and method for the decade 1965-1975. *Journal of Psychosomatic Research*, 21: 115-139, 1977.

Table 1.- United States Army Enlisted Mortality Rates;  
 Separations due to death during 12-month periods divided by  
 strength at end of period, 1977 thru 1980.

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Mortality Rates  
 (per 100,000 population)

SEX	FY77		FY78		FY79		FY80	
Male	130.8	(4.5)a	146.5	(4.9)	140.9	(4.8)	118.9	(4.4)
Female	54.2	(10.8)	95.0	(13.7)	61.6	(10.6)	68.0	(10.5)
Total	125.6	(4.3)	142.6	(4.6)	134.2	(4.5)	114.3	(4.1)

a. Standard Error of the Mean

Source: Directorate for Information, Operations and Reports, DOD.

Table 2.- United States Army and Civilian Standardized Mortality Ratio by Sex: Observed United States Army age, race and sex distribution applied to 1978 United States life tables and standardized mortality ratio (SMR).

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Mortality Rate  
(per 100,000 population)

SEX	OBSERVED	EXPECTED	SMR
Male	118.9 (4.4)a	230.2 (6.1)	0.52b
Female	68.0 (10.5)	79.9 (11.3)	0.85c
Total	114.3 (4.1)	216.6 (5.7)	0.53b

a. Standard Error of the Mean

b. significant at .05%

c. not significant

Sources: Directorate of Information, Operations and Reports,  
DOD, and US Life Tables, II-5, DHHS.



Table 3.- Enlisted Deaths Due to Disease, United States Army by  
Sex.

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Disease Deaths

(%)

SEX	FY77	FY78	FY79	FY80
Male	7.6	10.8	6.6	6.7
Female	4.0	8.3	2.9	7.1
Total	7.5	10.7	6.5	6.8

Source: Directorate for Information, Operations and Reports,  
DOD.

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